



THE Readout

STANISLAUS AMATEUR RADIO ASSOCIATION

May 2020

Volume 41, Number 5

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Next General Meeting: WD6EJF repeater

145.390 - PL
136.5

From the desk of *The Readout* editor John Otte, K6JRO

Welcome to another edition of *The Readout*!

There is no doubt that these are trying times. In his classic book, *A Tale of Two Cities* Charles Dickens writes, "It was the best of times, it was the worst of times." For me, in particular, the days seem to run together reminding me of the 1993 Bill Murry film *Groundhog's Day*. Like many of you, I miss the comradery of club meetings and events. While we have the radio, I miss that tactile interaction so necessary to our species. However, it seems that the present conditions with COVID-19 will extend well beyond the summer with some experts suggesting that certain aspects of face masks (see DIY project attached) and social distancing might even become part of our future cultural habits.

With this in mind, the SARA board of directors met on Wednesday, May 6th to discuss Field Day 2020 which is scheduled for June 27-28. For many of us, Field Day is our Christmas in terms of anticipation and excitement. But this year will be different.

To be clear, as of right now, Field Day has *not* been canceled. In fact, the Board feels that it is too early to make this decision. The Board will continue to monitor the situation and plans to follow all guidelines as deemed necessary in the interest of public health. The board will reconvene on Wednesday, June 3rd to make a final decision. If we do have Field Day, the board agrees that social distancing measures will still be in place. As a result, the Board has decided to cancel the raffle and banquet. Though, this is not all bad news.

As you know, the club has been wrestling with repeater noise for several years. Much of this noise was solved in April with the installation of new coax and antenna (see *Featured Article* in the April Readout). However, "crackling" can still be heard and is the result of much need tower work. The estimated cost is \$1000. Presently, we have \$620 in the equipment fund and \$826.88 in the Field Day fund. While the Field Day fund will be rolled over to next year, the Board has decided to use a portion of this to complete the work on the tower. However, to avoid the use of the Field Day fund, the board is seeking donations to cover the extra cost keeping the Field Day fund as a backup.

President's
message,
Wally, KK6CPN

Minutes, April
Net

As Field Day coordinator, I plan to donate to allow the fund to roll over and grow. Be that as it may, it is comforting to know that fund would be put to good use.

If you have any suggestions for articles or if you would like to publish an article, please reach out to me at k6jro@arrl.net.

Stay safe! Stay healthy!

73 de John, K6JRO

A Message from the Club President Wally, KK6CPN

I want to praise everyone for staying in place and attending last months Net Meeting.

Stanislaus OES is still up and running so we will continue to have our monthly meetings on the NET and when hopefully we be able to get back to normal by June.

Field Day is still on but we might not be going up the hill. The last information I received from the Public Health Director they are looking at opening things up in mid-June but, it is unknow if the US Forest Service is going to open the area we use. I will keep everyone up to date as I hear more.

Please take care of yourself.

Wally, KK6CPN

Minutes from the April net meeting

Stanislaus Amateur Radio Association
April 21, 2020
(conducted over the air net 145.390 repeater due to COVID19)
MINUTES

President Wally, KK6CPN called the meeting to order at 7:50 p.m. No March minutes were taken due to this was the first meeting conducted on a 145.390 repeater net.

President Wally, KK6CPN

The 2020 Field Day still on the schedule. However, we are still considering options on where and how to have Field Day due to the COVID19 health emergency. The Governor's non-essential travel restrictions only go through May 30, 2020 and are constantly under review. The Club Board will make a decision by the end of May (maybe sooner if things change) on field day plans. For ARRL field day information please check their web site at www.arrl.org/FieldDay . Lots of good information and links to purchase your field day t-shirts and other items.

The contract for the Packet Vault with the Bureau of Reclamation is up at the end of the year. The renewal application has been completed (with the help of Vicki KJ6RCV). There is a \$100.00 land use review/application

Joining SARA:

We are currently taking membership applications for 2020.

One-year dues are \$30.00 for individuals, or \$45.00 for a family. To join, fill out the registration form in this newsletter and bring it to any SARA meeting.

Write for The Readout:

If anyone has information that they want included in *The Readout* please submit to the editor
k6jro@arri.net.

Please try and have the information or articles to the editor by the 30th of each month.

review. After their review they will hopefully approve our use and keep the yearly rent at \$50.00. He will report back once the review is completed.

Vice President, Mark WB6BJN

No report.

Treasurer, Vicki, KJ6RCV gave a report and a copy will be in the READOUT (see below). It was approved by Bill AE6J and Jason KA6TIO.

Sergeant at Arms Danny, W6DMC asked that the field day fund roll over to next year. John K6JRO agreed with this due to the current circumstances and he would not be able to shop for any of the field day prizes.

Board Members: Tom, K6KQR, Bill, AE6J, Brendon, NK6M and Paul, W6UHF

No report from Paul, Brendon or Tom. Bill talked about Field Day and possible options. If the regular site is still closed, he can check with someone in Arnold who may have a place for the club to use if the traditional field day can go forth. He is still taking orders for Lockford sausages. If you want to order one e-mail him at ki6hmv@gmail.com. You do not have to pay in advance. You can pay at field day and if it is cancelled there will be no charge.

Equipment/Mt Oso: Patrick, KG6AZZ

Patrick is monitoring the "crackle" in the signal from the 145.390 repeater. The mesh network and new antenna have been installed for the 145.110 repeater.

ARES: Lucian KF6NPG

The next ARES meeting is Saturday May, 2, 2020 from 1000 to 1200. The meeting will be over the air on the 145.390 repeater. There will be the net check in, officer reports, a 2-meter simplex test on 147.540, and a 20-meter hf test.

Weather: Mark, WB6BJN

No report

Community Events: Lucian, KF6NPG

All of our events are cancelled through the middle of May. A list is in the READOUT.

Ham Cram: John, K6JRO

Our next Ham Cram is scheduled for Saturday August 15, 2020. Hopefully things will be settled by then and we can have the study and testing session.

Un-Finished Business: None reported.

New Business: None

Presentation: None

Meeting Adjourned: 8:20 P.M.

Treasure's
Report,
Vicki, KJ6RCV

Treasure report from the March net meeting



STANISLAUS AMATEUR RADIO ASSOCIATION

P.O. BOX 4601, MODESTO, CA 95352-4601

www.saraclub.net

Treasury Report April 21, 2020

3-17-20 to 4-20-20

BALANCE FORWARD: \$8,369.74** (Previous Balance \$8,476.14)

Bills Paid:

Moeller Mt. Oso:	\$ 80.00 (Ck #1042 – April site rent 4-1-20)
PG & E	\$ 56.44 (Ck #1043 – Mt. Oso utilities 4-14-20)

Total: \$ 136.44

INCOME:

Dues	\$ 30.00
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Total: \$ 30.00

DEPOSITS:

Tri-Counties Bank	\$ 30.00 (4-16-20)
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BOTTOM LINE:

Total Income:	\$ 30.00
Total Expenses:	\$ 136.44

Field Day Fund:	\$ 826.88 (included in account balance)
Equipment Fund	\$ 620.00 (included in account balance)

**** TRI COUNTIES BANK BALANCE: \$8,369.74 as of 4-20-20**

Treasurer

Vicki Rutz

April 21, 2020

ARES

Pat, KG6JXZ
Stanislaus County
Emergency
Coordinator

Stanislaus County ARES Report



ARES continues to monitor the COVID-19 situation with the county. The comms in the county are at 100% and at this point there is no need for an ARES activation. Notifications will be sent if the situation changes.

Training continues as we have had two great months in a row, Bill, AE6J led the group in multiple nets and field exercises. The exercises are important for the testing of our equipment and practice for our members. ARES is able to easily continue training and practice remotely with all members. We continue to see a large number of visitors attending our exercises as well.

So far, we have completed nets on 2, 20, and 40 Meters. As well a multi-county simplex net that was very successful. Plans are currently being developed for our June meeting, stay tuned for details.

Pat, KG6JXZ



ARES® operates under the authority of the Stanislaus County Office of Emergency Services (OES), and the Stanislaus County Assistant Director for OES. ARES® is organized under the auspices of the American Radio Relay League, the San Joaquin Valley Section Manager, and the San Joaquin Valley Section District Emergency Coordinator. Operational control is under the Stanislaus county OES.

If you are interested in joining Stanislaus ARES go to the Stanislaus ARES website (www.stanares.org) and click on the Join ARES tab. There is formation on how to join and the membership forms to complete are available there. Please check in on the ARES voice radio net very Wednesday at 7:30 pm on the 145.390 – pl. 136.5 S.A.R.A. repeater. There is also an unproto Packet radio net during the voice net on 144.910 via the SARA node. The monthly training meeting is at 10:00am on the first Saturday of the month at 3705 Oakdale Road Modesto, CA. Meeting dates and times can change due to operational needs. Please check the web site for updates.

Due to the State-wide Stay in Place Order, ARES meetings will be conducted on the SARA repeater until further notice. Please join us on 145.390 at 10am on Saturday, May 2nd.



Ham Cram

John, K6JRO Ham
Cram coordinator

Ham Cram Information



Study for your amateur radio license or upgrade your current license. Sponsored by the SARA and Stanislaus county ARES.

When and Where?

August 15, 2020

3705 Oakdale Road, Modesto, CA

Registration opens at 7:45AM and the study session begins promptly at 8:30AM

Test begins at 4:00 PM

Please bring the following:

- A valid identification, preferably CDL (California Driver's License)
- Cash or check for \$25 for the Ham Cram study and testing session, check preferred and payable to Stanislaus Amateur Radio Association (SARA).
- If you are attending the test only session at 4:00pm the cost is \$15.00
- If you are upgrading your license, please bring a copy of your current license as well as the ORIGINAL.

Sign Up

Please send the following information to hamcram@stanares.org

Full name, Address, Phone, and Call Sign if you have one.

If you're interested in the all-day Cram (study session) or Test only? Any other comments.

ARRL EC-001 course

ARRL EC-001 Emergency Communications Course

If you need to take the ARRL Emergency Communications Course (EC-001) Stanislaus ARES can help. The EC-001 workbook is out of print, however The Indian River County ARES has all of the study information (including test and answers) posted on their web site. Recent amateurs who have taken the test have printed out the test questions and answers and have studied like they would for a ham cram. Pass rate has been about 100 percent.

The ARRL has updated this course. There are some content differences, however members who have used this to prepare for the challenge exam have been successful.

Here is the web site to study for the ARRL Introduction to Emergency Communications Course challenge examination (EC-001):

Go to www.ircares.org This is the web site for the Indian River County ARES. Once you are on the web site click on the training and reference

tab. Then click on the ARRL Introduction to Emergency Communications (EC-001) tab. That will take you to the course information.

Once you complete this on-line study you can arrange with Stanislaus ARES to take the ARRL test. We generally give the test at a ham cram session or before or after the monthly ARES meeting. Please e-mail Pat KG6JXZ at kg6jxz@charter.net, or Lucian KF6NPG at kf6npg@aol.com or John K6JRO at k6jro@arrl.net to arrange to take the test. ***There is a \$15.00 test administration fee payable to ARRL.***

You can also access the updated ARRL EC-001 course at the ARRL website. Go to www.arrl.org. Once there click on the licensing, education and training tab. Then click on the online course catalog tab and look for the EC-001 course. It states that it takes about 45 hours to complete the course over 9 weeks. Once you complete the ARRL course you can take the exam online. From what I can see there is no charge to take the course or exam. You have to take the course before you can take the exam.

You cannot take the challenge exam online.



Bygone Days: When, where, and who?

Can you guess when, where, and who? Thank you, Jason, KA6TIO for providing this photo.

The picture was taken at Mt. Oso in May 1983 at the US Bureau of Reclamation (USBR) radio vault. Pictured left to right: (Holding the Bud tall can) Bob, WA6ZLO; former engineer for KTRB, Les Lester, W6LHQ and Bill Peitz, W6AFS (Jason's father). They were supervising antenna and coax work at the time.

Bill, W6AFS, through negotiations with the USBR, secured a contract for a long-term lease for a space in the radio vault for SARA equipment. It housed our 2M and 220 repeaters for quite a while before moving down the hill to their current location. It now houses our digital mode repeater.



Featured Article

Featured Article: GMT-UTC-Zulu. What's the difference?

By Bill Danforth, AE6J

GMT, UTC and WWV

Where to begin? First off, let me see your hands if you know that GMT, Greenwich Mean Time and UTC, Universal Coordinated Time, are the same?

Well, you're wrong. They are not.

GMT, Greenwich Mean Time, was primarily developed as a means for accurate navigation, first marine navigation and then aerial navigation. Knowing precise time would allow navigators to know their location longitudinally. GMT is based on the mean time of when the sun is at its highest peak above longitude 0, at the Greenwich Observatory. The mean time is the average throughout the year, as throughout the year, it can be off by up to 19 minutes.

UTC, Universal Coordinated Time, this is the time by which the worlds clocks are synced. It is considered interchangeable with GMT, but GMT is not precisely defined by the scientific community. UTC is based on International Atomic Time with leap seconds added at irregular intervals to compensate for the slowing of the Earth's rotation. Leap seconds are added to keep UTC with nine tenths of a second of GMT. While GMT has been around since the mid 1800's, UTC wasn't initiated until the start of 1961, getting its official name in 1967.

Time zones around the world are expressed using positive or negative offsets from UTC, as in the list of time zones by UTC offset.

UTC is also the time standard used in aviation, e.g., for flight plans and air traffic control clearances. Weather forecasts and maps all use UTC to avoid confusion about time zones and daylight-saving time. The International Space Station also uses UTC as a time standard.

Amateur radio operators often schedule their radio contacts in UTC, because transmissions on some frequencies can be picked up by many time zones.

UTC is used in many internet and World Wide Web standards. The Network Time Protocol, designed to synchronize the clocks of computers over the internet, encodes times using the UTC system.

UTC is also known as Zulu time.

WWV - WWV is the callsign for the US NIST, National Institute of Standards and Technology, HF ("shortwave") radio station near Fort Collins, Colorado. The station transmits official US Government frequency and time signals on 2.5Meg, 5Meg, 10Meg, 15Meg and 20Meg. These frequencies and time signals are controlled by atomic clocks. The NIST also operates a similar station, WWVH in Hawaii.

The WWV stations are among a few radio stations west of the Mississippi with the callsign beginning with a W. This comes from its early days in DC and Maryland.

WWV is the oldest continuously operating radio station in the US. It first went on the air in Washington DC in May of 1920, a few months before KDKA in Pennsylvania. It first began broadcasting Friday evening concerts on 600 Kilohertz and it could be heard about 25 miles away. In December of 1920, it began transmitting on 750 kilohertz, allowing it to be heard almost 200 miles away. It also began sending Morse Code news reports from the department of agriculture until April of 1921.

Late in 1922, WWV's purpose shifted to broadcasting standard frequency signals. These signals were desperately needed by other radio stations to help

them stay on their own frequencies. WWV's most well-known feature, the announcement of time, was added first in code in October of 1945 and then voice on January 1st of 1950. The original voice time transmissions were at 5-minute intervals, changing to the current every minute in July of 1971. WWV moved a few times, was almost shut down in 1926, almost burned down in 1940, and was finally moved to its current location on December 1st, 1966. This enabled the WWV to better reach all of the US, instead of being able to be heard in the Eastern portions of the US.

In April of 1967 it made the move to GMT from the local time (first Eastern then Mountain). Just to show you again the difference between GMT and UTC, the WWV switched to UTC from GMT. Some records say this occurred in December of 1968, others say it happened officially in 1974.

Technical Article: 145.110 antenna and Mesh installation at 1010 10th St. Modesto, CA

By Lucian Thomas, KF6NPG

April 20, 2020

The new 145.110 antenna has been installed on the tower downtown. It is a twin of the one we put on Mt. Oso last week. The antenna is a CommScope DB 224-E 4 bay dipole antenna with an 8.1db gain and measured 1.25 to 1 vswr after installation. The repeater has been moved to the new location and is operational. This should give us very good coverage throughout the county on mobile radios. We will have to do some testing to determine handie talkie coverage once the repeater has been moved and connected to the new antenna.

The mesh equipment has also been installed and is operational from this location. If you have access to the mesh you would see this for the downtown location: WD6EJF-DWTN-OSO-M5-RKT. Patrick KG6AZZ measured the link quality at 79% / 90% 9.8 Mbps and the signal/noise/ratio at -75 / -95 / 20 dB. A big thanks to Kurt and Nate WA6RHT (Radio Technicians) from SR 911 for helping us to get this project completed.



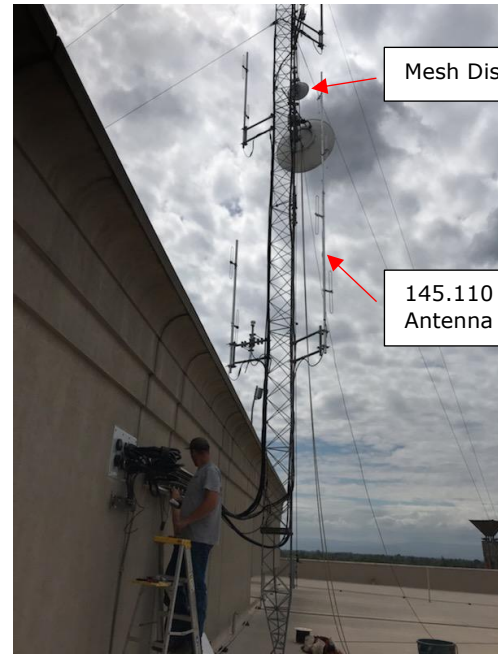
Antenna Assembly



Coax installation



Mesh Dish



Mesh dish and 145.110 Antenna



145.110 repeater installed



Mesh equipment installed

Community Events:

April

Saturday 4th ARES Meeting 10a-12pm. Voice Net

Saturday 4th Turlock Road Race 7a-3p (depending on assignment) Turlock Lake
22600 Lake Rd. La Grange need 15 operators. *****CANCELLED*****

Saturday 11th Copperopolis Road Race 7a-3p (depending on assignment) Hunt Road
and Milton Road need 8-9 operators. *****CANCELLED*****

Saturday 18th MS Walk 8a-12p Beyer Park need 4 operators. *****CANCELLED*****

May

Saturday 2nd ARES Meeting 10a-12p Voice Net

Saturday 9th Ride for Mom 7a-4p (depending on assignment) Johansen High School need 10 operators. *****CANCELLED*****

Friday 15th March of Dimes Walk 8a-12p Beyer Park 4 operators ****Date Change****
*****CANCELLED*****

Saturday 16th Modesto Criterium 7a-3p 4-6 operators needed.

Sunday 17th Modesto Road Race Salida area 7a-12p 6-8 operators needed.

Sunday 31st Regalado Road Race need 8 operators.

June

Saturday 6th ARES meeting 10a-12p.

Friday through Sunday (26, 27, 28) Field Day.

July

Saturday 11th ARES meeting 10a-12p.

August

Saturday 1st ARES meeting 10a-1p.

Saturday 15th Ham Cram 8a-5p.

September

Saturday 5th ARES meeting 10a-12p

Saturday TBA Rally in the Valley 7:30am- 3:00pm

October

Saturday 3rd ARES meeting 10-12p

Saturday ??? 6a-6p (depending on assignment) Assist LARK with Cycling 4 Veterans Bike Ride additional details to follow need 7 operators. **Web site for the ride is cycling4veterans.com**

Saturday 10th Stanislaus County Bike Club Golden Hills Century Knights Ferry 7a-4p need 5-6

Friday-Sunday (16, 17, 18) Pacificon San Ramon Marriot

November

Saturday 7th ARES meeting 10a-12p

December

Saturday 5th ARES meeting 10a-12p

Local Nets



Local Nets:



S.A.R.A. operates several repeaters.
These are located on Mt. Oso in Patterson, CA:
145.390 – pl 136.5
224.240 – pl 136.5
440.225 +pl 136.5
51.800 – pl 136.5

- Digital node 144.910, digipeater name "SARA".
- 145.110 – pl 136.5 is a low-level repeater located in Modesto, CA.

All SARA nets meet on the 145.390 – pl 136.5 repeater except where noted.
SARA Club net is every Tuesday (except the 3rd Tuesday) at 7:30pm.

The morning traffic and information net meets Monday through Friday
from 7:00am to about 8:00am.

The geezer net (It is not about age; it is all about attitude) meets each
weekday morning 9:00am to 9:30am.

The Stanislaus County ARES net meets every Wednesday at 7:30pm.
The Space net meets every Friday at 8:00pm

S.A.R.A. meets the Third Tuesday of every month at 7:00pm at 3705
Oakdale Road Modesto, CA 95357. The club website is www.saraclub.net.

The Stanislaus County ARES generally meets the First Saturday of the
month at 10:00am at 3705 Oakdale Road Modesto, CA 95357. Meetings
can be changed due to training requirements please check the web site for
current information. The web site is www.stanares.org.

Turlock Amateur Radio Club (W6BXN) has several nets as well:

Morning commute and Beer and Pizza Net Monday through Friday 6:30am
to 7:00am 147.030 + pl 100 or 447.700 + pl 94.8.

Weekly club net every Tuesday (except the 2nd Tuesday) at 7:00pm on the
above repeaters.

DMR round table net every Monday at 7:00pm on the TARC regional talk
group. Brandmeister TG 310658 which is linked to the W6BXN DMR
repeaters.

TARC meets the second Tuesday at 7:00pm at the Salvation Army 893
Lander, Turlock, CA.

Officers and Board Members

Merced ARES has a weekly net on Mondays at 8:00pm on the TARC repeaters. They have a monthly meeting the third Wednesday at 6:00pm at the Merced County Health Department, 260 East 15th Street Merced, CA.

TARC web site is www.w6bxn.org and Merced ARES is www.mercedares.org.

2020 SARA Club Officers and Board Members

Officers:

President: Jim Walsh, KK6CPN kk6cpn@yahoo.com

Vice President: Mark Lemmons, WB6BJN
wb6bjn@samobile.net

Secretary: Lucian Thomas, KF6NPG kf6npg@aol.com

Treasurer: Vicki Peitz, KJ6RCV vptigger@gmail.com

Sergeant at Arms: Danny Cortez, W6DMC cortezdanny51@gmail.com

Board Members:

Paul Owen, W6UHF w6uhf@aol.com

Tom Brawley, K6KQR ki6kqr@sbcglobal.net

Brendon Church, NK6M brendonchurch@me.com

Bill Danforth, AE6J ki6hmv@gmail.com



Committees/Workgroups:

Club Technician: Patrick Dunbar KG6AZZ patd@kg6azz.net

Readout Editor: John Otte, K6JRO k6jro@arrl.net

Community Events: Lucian Thomas, KF6NPG kf6npg@aol.com

Stanislaus County ARES

Emergency Coordinator: Pat Mandas, KG6JXZ
kg6jxz@charter.net

Nominations are held every November with elections in December

STANISLAUS AMATEUR RADIO ASSOC. MEMBERSHIP FORM



Check One: New Member___ Renewing Member___ Family Membership___

NAME: _____ CALLSIGN: _____

ARRL Member:(Yes) (No)

ADDRESS: _____ CITY: _____

ZIP: _____ PHONE: Home _____ Cell: _____

E-Mail: _____

ADDITIONAL FAMILY MEMBERS AT SAME ADDRESS:

NAME: _____ CALL SIGN: _____ ARRL: (Yes) (No)

NAME: _____ CALL SIGN: _____ ARRL:(Yes) (No)

TOTAL DUES PAID: _____ Date: _____

One-year membership dues are \$30.00, Family Dues are \$45

Note: Bring membership form to SARA Meeting or Mail to: SARA Club, P.O. Box 4601, Modesto, CA 95352-4601



Use of Cloth Face Coverings to Help Slow the Spread of COVID-19

How to Wear Cloth Face Coverings

Cloth face coverings should—

- fit snugly but comfortably against the side of the face
- be secured with ties or ear loops
- include multiple layers of fabric
- allow for breathing without restriction
- be able to be laundered and machine dried without damage or change to shape

CDC on Homemade Cloth Face Coverings

CDC recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain (e.g., grocery stores and pharmacies), **especially** in areas of significant community-based transmission.

CDC also advises the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it from transmitting it to others. Cloth face coverings fashioned from household items or made at home from common materials at low cost can be used as an additional, voluntary public health measure.

Cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the cloth face covering without assistance.

The cloth face coverings recommended are not surgical masks or N-95 respirators. Those are critical supplies that must continue to be reserved for healthcare workers and other medical first responders, as recommended by current CDC guidance.

Should cloth face coverings be washed or otherwise cleaned regularly? How regularly?

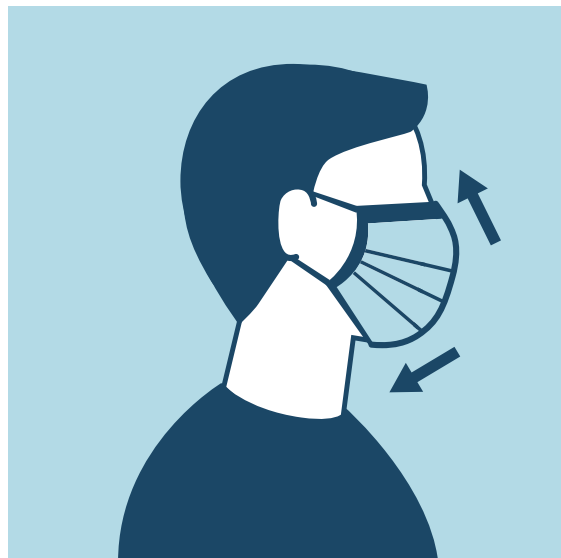
Yes. They should be routinely washed depending on the frequency of use.

How does one safely sterilize/clean a cloth face covering?

A washing machine should suffice in properly washing a cloth face covering.

How does one safely remove a used cloth face covering?

Individuals should be careful not to touch their eyes, nose, and mouth when removing their cloth face covering and wash hands immediately after removing.

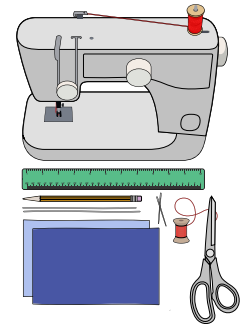


cdc.gov/coronavirus

Sewn Cloth Face Covering

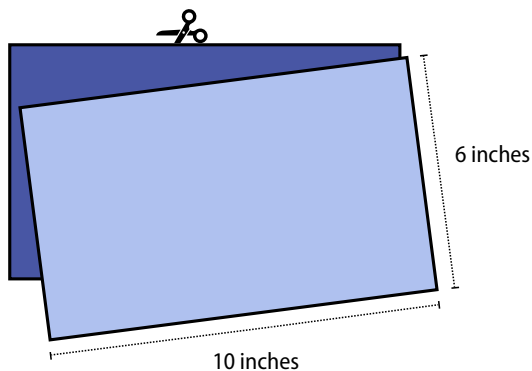
Materials

- Two 10"x6" rectangles of cotton fabric
- Two 6" pieces of elastic (or rubber bands, string, cloth strips, or hair ties)
- Needle and thread (or bobby pin)
- Scissors
- Sewing machine

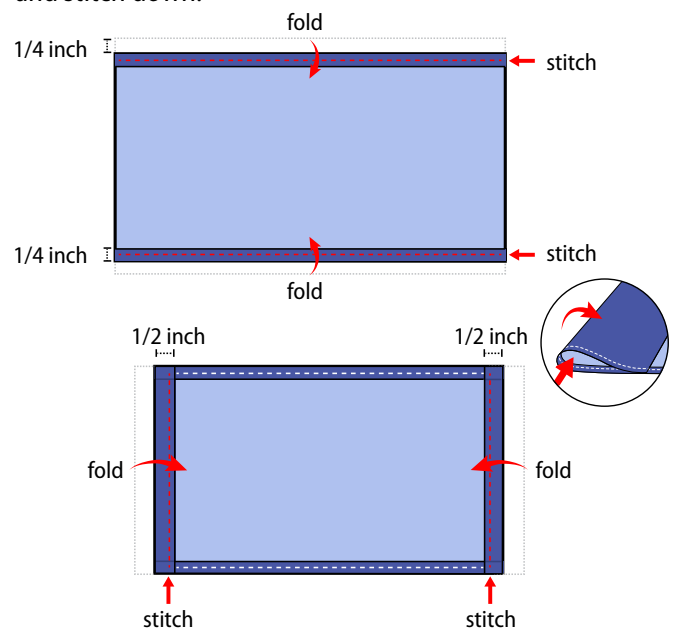


Tutorial

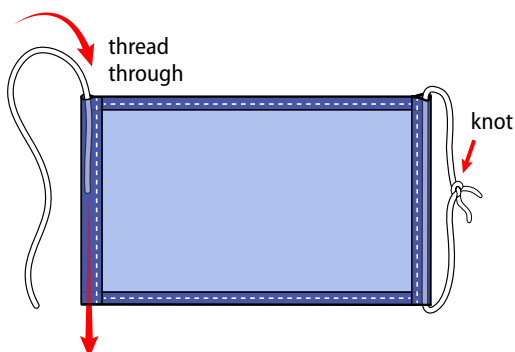
1. Cut out two 10-by-6-inch rectangles of cotton fabric. Use tightly woven cotton, such as quilting fabric or cotton sheets. T-shirt fabric will work in a pinch. Stack the two rectangles; you will sew the cloth face covering as if it was a single piece of fabric.



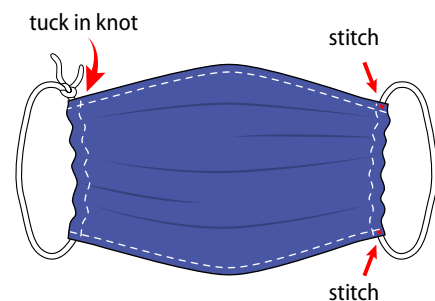
2. Fold over the long sides $\frac{1}{4}$ inch and hem. Then fold the double layer of fabric over $\frac{1}{2}$ inch along the short sides and stitch down.



3. Run a 6-inch length of $\frac{1}{8}$ -inch wide elastic through the wider hem on each side of the cloth face covering. These will be the ear loops. Use a large needle or a bobby pin to thread it through. Tie the ends tight. Don't have elastic? Use hair ties or elastic head bands. If you only have string, you can make the ties longer and tie the cloth face covering behind your head.



4. Gently pull on the elastic so that the knots are tucked inside the hem. Gather the sides of the cloth face covering on the elastic and adjust so the mask fits your face. Then securely stitch the elastic in place to keep it from slipping.

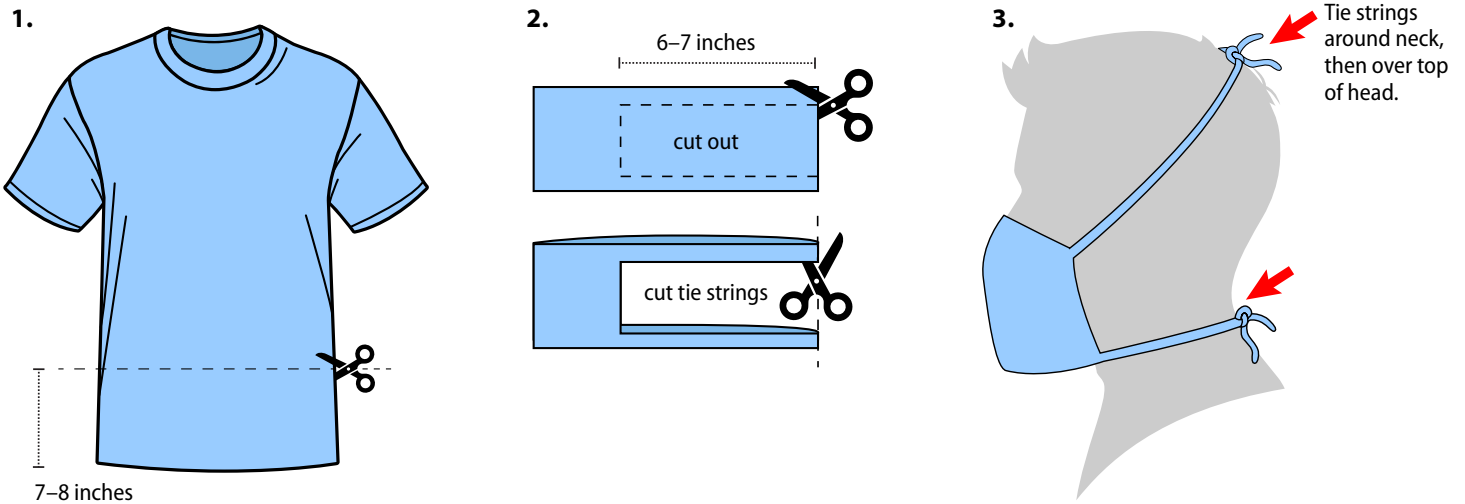


Quick Cut T-shirt Cloth Face Covering (no sew method)

Materials

- T-shirt
- Scissors

Tutorial



Bandana Cloth Face Covering (no sew method)

Materials

- Bandana (or square cotton cloth approximately 20"x20")
- Rubber bands (or hair ties)
- Scissors (if you are cutting your own cloth)

Tutorial

